

UCRL-JC-119124 Abstract

Talk to be presented at Stanford University on November 30, 1994

Title:

Investigations of Low Frequency (1 Hz to 30 Hz) EM Signals from Underground Nuclear and Chemical Explosions - Applications to Treaty Verification

Abstract:

Low attenuation of EM fields at ELF frequencies makes them attractive as a possible means to detect underground nuclear explosions. During the late 1980's an investigation was carried out by LLNL to see if ELF EM signals from underground nuclear explosions coupled to the earth-ionosphere waveguide and thereby could be used for world-wide detection. We monitored 15 underground nuclear explosions with multi-component EM sensors at distances ranging from 5 km to more than 10,000 km from surface ground zero. More recently, we have detected low frequency EM signals from a large (1 Kt) underground chemical explosion. In the talk I will describe the equipment used and the results of these field measurements and how they relate to the context of a low-yield or comprehensive test ban treaty.

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